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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/596,238

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Udo Becker

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EXAMINER

BARNES-BULLOCK, CRYSTAL JOY

ART UNIT

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2121

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/596,238	Applicant(s) BECKER ET AL.	
	Examiner Crystal J. Barnes Bullock	Art Unit 2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>15 Feb '07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The following is an initial Office Action upon examination of the above-identified application on the merits. Claims 1-16 are pending in this application.

Priority

2. Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged. Applicant has complied with the conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 365(c).
3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

4. The examiner has considered the information disclosure statement (IDS) submitted on 15 February 2007.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1, 11, 12 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Regarding claim 1, the term "device" in line 2 is unclear and renders the claim(s) indefinite because it is unclear which limitation the term refers to.

8. Claim 1 recites the limitation "the supply devices" in line 7. There is insufficient antecedent basis for this limitation in the claim.

9. Regarding claim 1, the term "this" in line 9 is unclear and renders the claim(s) indefinite because it is unclear what limitation the term refers to.

10. Regarding claim 11, the phrase "or the like" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed

by "or the like"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

11. Claim 12 recites the limitation "the backwall plate" in the last line. There is insufficient antecedent basis for this limitation in the claim.

12. Claim 15 recites the limitation "the server" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

14. Claims 1-10, 12 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by USPN 6,574,652 B2 to Burkhard.

As per claim 1, the Burkhard reference discloses a data transmission device with at least one data adaptation device (see column 7 lines 41-46, "satellite box 18-20") and one data distributing device (see column 7 lines 39-41, "satellite box 18-20"), which device is connected between at least one process control computer (see column 57-58, "master CPU box 12") and field units (see column 7 lines 29-34, "sensors 31-38") connected thereto via a bus system (see columns 8-9 lines 64-3, "cables 41-43"), wherein the process control computer ("master CPU box 12") and field units ("sensors 31-38") are parts of a process control system (see column 7 lines 57-58, "DAS 10") and the data transmission device (see column 9 lines 9-12, "enclosure 50 , enclosures for master CPU box 12, barrier box 14") is, in particular, intrinsically safe ("intrinsically safe"), wherein the data adaptation device ("satellite box 18-20") and the supply devices (see column 13 lines 60-62, "barrier box 14") assigned thereto are formed so that they are explosion-proof ("blown fiberglass, EMI shielded") and each supply device ("barrier box 14") is connected to the data distributing devices ("satellite box 18-20") via an explosion-proof line ("intrinsically safe barriers 64"), wherein either this or the field units ("sensors

31-38") connected thereto have a barrier device (see column 7 lines 49-56, "barrier box 14") for limiting the applied power ("current level and voltage level").

As per claim 2, the Burkhard reference discloses the data adaptation devices ("satellite box 18-20") and/or supply devices can be mounted on a backwall plate (see column 9 lines 15-18, "enclosure's mounting plate 54") that has a field bus (see column 10 lines 1-4, "electrical cables") for communication among the devices ("field sensors 31-38, barrier box 14") and with the process control computer ("master CPU box 12").

As per claim 3, the Burkhard reference discloses the data adaptation device ("satellite box 18-20") has a data matching and/or data converting circuit (see column 7 lines 41-46, "converts all the received analog signals to digital").

As per claim 4, the Burkhard reference discloses the data adaptation devices ("satellite box 18-20" and/or supply devices ("barrier box 14") are encapsulated in an explosion-proof manner (see column 13 lines 60-62, "blown fiberglass, EMI shielded").

As per claim 5, the Burkhard reference discloses the supply device ("barrier box 14") has at least one output (see column 14 lines 47-51, "cables 41-44") with extended safety (Ex-e) ("intrinsically safe side 80").

As per claim 6, the Burkhard reference discloses the data distributing device ("satellite box 18-20") and/or field unit ("sensors 31-38") is formed for intrinsically safe (Ex-i) signal matching (see column 6 lines 49-51, "intrinsically safe").

As per claim 7, the Burkhard reference discloses the barrier device (see column 6 lines 49-51, "intrinsically safe") is integrated in the field unit ("sensors 31-38") or in the data distributing device ("satellite box 18-20").

As per claim 8, the Burkhard reference discloses the barrier device ("barrier box 14") is a safety barrier (see column 7 lines 49-50, "intrinsically safe barriers") with Zener diodes (see column 15 lines 10-13, "zener diodes 84, 85") and/or resistors (see column 14 lines 56-65, "wirewound resistor") and/or fuses ("fast acting fuse").

As per claim 9, the Burkhard reference discloses the data distributing device ("satellite box 18-20") and field unit ("sensors 31-38") are connected by means of connection lines (see column 10 lines 1-4, "cable connectors 56") rated as intrinsically safe (Ex-i) (see column 6 lines 49-51, "intrinsically safe") or having extended safety (Ex-e) (see column 14 lines 47-51, "intrinsically safe side 80").

As per claim 10, the Burkhard reference discloses the data distributing device ("satellite box 18-20") is a junction box (see column 9 lines 15-18, "satellite box enclosure 50").

As per claim 12, the Burkhard reference discloses I/O signal matching modules (see column 14 lines 38-42, "connectors 69") can be mounted (see column 14 lines 36-38, "divider plate support 68") on the backwall plate (see column 14 lines 43-45, "barrier box enclosure 60").

As per claim 13, the Burkhard reference discloses the field units ("sensors 31-38") are sensors ("sensors 31-38") and/or actuators.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,574,652 B2 to Burkhard in view of USPN 6,885,949 B2 to Selli.

As per claim 11, the Burkhard reference does not expressly disclose the bus system between the process control computer and backwall plate or bus interface module on the backwall plate is a Profibus or the like.

The Selli reference discloses

(see column 6 lines 34-43, "The processor 108 transmits commands to these various sensors of the sensor array 32 by utilizing a particular communications protocol and receives commands from the various sensors of the sensor array 32 utilizing a communications protocol which is compliant with the protocol of the sensors. In an exemplary embodiment of the present invention, the communications protocol is Fieldbus. In another certain embodiment, the communications protocol is HART.RTM. protocol, PROFIBUS.RTM. protocol, etc.")

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the cables taught by the Burkhard reference to utilize the communications protocols taught by the Selli reference.

One of ordinary skill in the art would have been motivated to modify the cables to utilize the communications protocol which is compliant with the protocol of the sensors.

17. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,574,652 B2 to Burkhard in view of USPN 6,169,488 B1 to Ketler.

As per claim 14, the Burkhard reference does not expressly disclose the process control computer is connected to a server via a high-speed data transmission device.

The Ketler reference discloses
(see column 4 lines 41-42, "A communications bus 204 connects the unit boxes with a central computer 205.")

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the data acquisition system taught by the Burkhard reference with the central computer and communications bus taught by the Ketler reference.

One of ordinary skill in the art would have been motivated to modify the data acquisition system with the central computer and communications bus to quickly detect the presence of any hazardous substances at a remote location of a facility or process.

As per claim 15, the Burkhard reference does not expressly disclose the server is connected to an input device for, at least, maintenance and modification of the process control system.

The Ketler reference discloses

(see columns 5-6 lines 66-6, "A Rem-Cal card, 29, which is a proprietary remote calibration, current regulator, and signal regenerator card, is connected by jumper wires (not all shown) to each intrinsic safety barrier 28. The unit box also includes four DX4404B cards, which are proprietary multipurpose field input-output cards, each with 4 analog inputs, 4 digital inputs, and 4 digital outputs (SPDT relays).")

(see column 6 lines 11-13, "Blinking LEDs 32A show communication polling and responses between the remote computer and each DX4404B card.")

(see column 8 lines 46-54, "Calibrated 4-20 ma sensor signals from the Rem-Cal modules are passed onto the DX4404B cards for monitoring. The DX cards are microprocessor-based circuit modules which handle the communications and the input/output signals. Each card is capable of monitoring four analog (4-20 ma) inputs and four digital contact closure inputs while controlling four digital (on/off)

outputs, all orchestrated through the central computer facility, which can be sited at any remote location.")

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the data acquisition system taught by the Burkhard reference with the central computer and communications bus taught by the Ketler reference.

One of ordinary skill in the art would have been motivated to modify the data acquisition system with the central computer and communications bus to provide long distance communications, remote calibration and regulator modules, and intrinsic safety barriers in one compact module.

As per claim 16, the Burkhard reference does not expressly disclose the data adaptation device is connected directly to the process control computer.

The Ketler reference discloses

(see column 4 lines 34-42, "Sixteen sensors 201 per unit box 202 feed signals from the area of hazardous gases into a fresh air area where the unit boxes are located in a plant, building, mine, or other facility. Alternatively, the unit box is configured to be explosion-proof if fresh air is not available. An AC/DC

power source 203 provides each unit box with power, or DC power can be brought from an adjacent, AC/DC powered unit. A communications bus 204 connects the unit boxes with a central computer 205.")

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the data acquisition system taught by the Burkhard reference with the central computer and communications bus taught by the Ketler reference.

One of ordinary skill in the art would have been motivated to modify the data acquisition system with the central computer and communications bus to provide long distance communications, remote calibration and regulator modules, and intrinsic safety barriers in one compact module.

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following references are cited to further show the state of the art with respect to intrinsically safe data transmission:

USPN 7,233,745 B2 to Loechner

USPN 6,998,998 B2 to Thomas

USPN 6,614,634 B1 to Westerfeld et al.

USPN 6,404,609 B1 to Mansfield et al.

USPN 6,154,683 to Kessler et al.

USPN 5,838,589 to Nail et al.

USPN 5,712,631 to Lewis et al.

USPN 5,583,764 to Nail et al.

USPN 5,448,231 to Takezoe et al.

USPN 4,796,159 to Miksche

WO 2005/031481 A2 to WITTMER

JP Pub. No. 7-15450 to ASANUMA et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Crystal J. Barnes Bullock whose telephone number is 571.272.3679. The examiner can normally be reached on Monday-Friday alternate Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on 571.272.2100. The fax

phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Crystal J. Barnes Bullock/
Primary Examiner, Art Unit 2121
CJB
5 June 2008